

REMARKS

Claims 1, 2, and 4 - 6 are pending. These claims were previously allowed but now have been rejected under 35 U.S.C. § 103(a) as being obvious from Japanese patent No. JP 411012684 (“JP ‘684”).

Applicants respectfully traverse the prior art rejections.

Applicants’ invention, as described in the specification, relates to increasing or enhancing the strength of steel pipe that is used for construction. In particular, applicants add controlled amounts of silicon to construction steel (e.g., steel pipe) to enhance its strength.

According to claim 1, 0.31% to 1.0% of silicon is added to the steel pipe. The steel pipe itself has a ferrite and pearlite (or ferrite and cementite) microstructure. The average size of ferrite grains is at least 25 μm , while the average grain size of pearlite/cementite is 4 to 20 μm .

In contrast to applicants strength enhancing invention, JP ‘684 relates to case hardening steel for cold forging. JP ‘684 describes case hardening steel” capable of expediting spheroidizing treatment and reducing manufacturing costs, excellent in cold forgeability.” JP’ 684 does not teach, show or suggest adding silicon to steel to enhance its strength.

As described in JP ‘684 paragraphs [0001] and [0002], case-hardening steel is generally used for making machine structure parts. The case hardening steel is generally formed into an intended shape after spheroidizing treatment and then is subjected to a carburizing treatment. The case hardening steel of Document 1 is cold-forged after a spheroidizing treatment and further is subjected to a carburization hardening-tempering treatment (See e.g., Figs. 4(A) and 4(B)). The purpose of the spheroidizing treatment is to soften the case hardening steel (i.e. in order to reduce its deformation resistance to cold forging). Further, for this very reason as

described in JP '684 paragraphs [0019], the Si content of the steel has to be controlled to 0.3% or less. Thus, JP' 684 teaches away from adding silicon to construction steel to enhance its strength.

In particular, JP' 684, does not show teach or suggest a steel pipe with 0.31% or more of Si as required by claim 1.

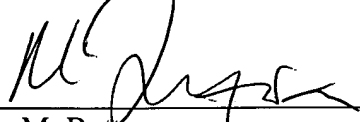
As explained above, the purpose and function of silicon addition to steel in the present invention is completely different from that of JP' 684. Applicants also note that the alloy composition of the present invention does not overlap that of JP' 684 and the use of the steel is also different.

For at least the foregoing reasons, claims 6, 9, and 10 are neither anticipated nor obvious from the cited references — Hunt and Hennessey, even if the references are viewed in combination. Further dependent claims 2-8 are patentable for at least the same reason as claim 6.

Conclusion

This application is now in condition for allowance. Reconsideration and prompt allowance of which are requested. If there are any remaining issues to be resolved, applicants respectfully request the Examiner to kindly contact the undersigned attorney by telephone for an interview.

Respectfully submitted,



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